

July 2011

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www.realworlddesignchallenge.org

Real World Design Challenge Camp



Students built airfoils and tested them in wind tunnels in one of the many activities of the week. In another, they designed objects with engineering software and printed their designs with a 3-D printer. In addition, campers took tours of aerospace related industries including the

The Mid-Atlantic Aerospace Complex and the NASA IV&V Educator Resource Center hosted a Real World Design Challenge Camp in which teams of students and their teachers explored the engineering design process.

National Aerospace Education Center, RCBI, Aurora, Pratt and Whitney, and NASA's Goddard Space Flight Center in Greenbelt, MD where the James Webb Space Telescope is being built. Teachers attending received laptops loaded with engineering



software and the training necessary for their students to participate in the Real World Design Challenge state competition during the school year. For more information about RWDC visit:



Above left: Campers check their airfoil designs in a wind tunnel

Above right: IV&V Director Greg Blaney visits the camp

Lower left: Creating an airfoil

Lower right: Group picture of the campers and mentors



StarQuest VIII at NRAO



Above: Two of the scores of telescopes used at StarQuest Above: Partial view of the campground next to the GBT radio telescope

The Central Appalachian Astronomy Club, the Kanawha Valley Astronomical Society, and the National Radio Astronomy Observatory joined to present the eighth annual StarQuest in Green Bank WV. Imaging clinics, lectures and astronomy workshops by a wide variety of astronomers and educators, children's activities, NRAO tours, using the 40ft, and keynote speakers –Dr. Seth Shostak of the SETI Institute, Dr. Michelle Shinn of Jefferson Lab, and Dr. D.J. Pisano of NRAO and WVU –made it a memorable week. (The ERC presented workshops.)

Graduate Assistant for Student Programs

Amy Phillips, former ERC undergraduate intern, graduated from Fairmont State University in May with a degree in secondary education. Now, while working toward a master's degree in education with a concentration in Digital Media, New Literacy and Learning, Amy will become the ERC's Graduate Assistant for Student Programs.

Amy has developed on-site workshops for students in which hands-on learning is used to develop concepts in science, technology, engineering and mathematics. Students will also link up with NASA scientists and other experts either in person or via the Distance Learning Network to learn even more.

Topics offered for these workshops include: Planetary Geology, Robotics, Rocketry, Energy, and the Electromagnetic Spectrum. Workshops will be three hours in length and held at the ERC during a school day.



Dates for the workshop will be announced in late August and will be on the new ERC calendar that will be published at the beginning of the school year.

To contact Amy for more information about the student programs and to schedule a date for your student group to participate in a workshop email her at:

amy.phillips@ivv.nasa.gov

Upcoming ERC Workshops and Events

June 28-30 Team America Rocketry Camp

July 25-29 RWDC Camp

August 1-5 PBL: Investigating the Science of Climate

August 6 DAWN Mission Vesta Fiesta

Aug. 5-6 Northern WV 4-H Robotics Training

Aug. 19-20 Southern WV 4-H Robotics Training

ERC Facelift

As the dust settles, the newly renovated ERC has finally emerged.

After countless hours of hard work from the Adnet and Crothall staff, the ERC is now equipped with state-of-the-art technology that enables the ERC staff to deliver more effective teacher and student workshops.

IV&V staff trainings also will be more comfortable as participants will be facing forward using the computers instead of having their back or sides to the presenter.

The ERC now has 18 new workstations, 9 new tables with monitor hide-a-way compartments, a larger smart board and newer video conferencing equipment. The new room configuration allows for better storage of printed materials, freeing space in the closet for an expanded equipment loan program.

In addition, the new Student Research Lab (old shuttle sim room) has been renovated to primarily handle robotic workshops. Stop by to visit, see the renovations and pick up a new ERC bookmark!

Left: Students at the Real World Design Challenge Camp were the first to use the new computer stations.

Above right: Joel York checks out the new software installations.

Below right: Seth Davis fits computer towers into the new desks.



The Mountain Institute Telescope Workshop



The Spruce Knob Campus of The Mountain Institute was the setting for a telescope workshop conducted by the ERC. TMI completed their own Backridge Observatory in 2007 and with the night sky at Spruce Knob judged to be one of the darkest east of the Mississippi River, the telescope viewing is excellent.

According to their website, "the Appalachia Program of The Mountain Institute

focuses on developing an understanding and appreciation for the complex interaction between community, culture, and conservation in the Appalachians - the oldest mountain range in the world.

The Spruce Knob Center serves as the home base for TMI's wide variety of *Mountain Learning* programs. These programs bring adventure, group process skills, leadership development, conservation, and environmental education together in a rigorous and invigorating environment.

It is the mission of *Mountain Learning* Programs to help people become powerful, secure, knowledgeable individuals with a clear vision of their responsibilities and potential for improving the human condition and the natural world.

The Mountain Institute custom designs programs to meet client desires. This includes programs for upper elementary through university students, professional development workshops for teachers, Wilderness First Responder & First Aid Courses, summer camps, and many other opportunities."



Above: Doing astronomy activities inside the Almati yurt

Upper right: Observing on the deck outside of the yurts.

STARBASE Martinsburg

DoD STARBASE is a premier educational program, sponsored by the Office of the Assistant Secretary of Defense for Reserve Affairs. At DoD STARBASE students participate in challenging "hands-on, mind-on" activities in Science, Technology, Engineering, and Math



(STEM). They interact with military personnel to explore careers and observe STEM applications in the "real world." The program provides students with 20-25 hours of stimulating experiences at National Guard, Navy, Marine, Air Force Reserve and Air Force bases across the nation. (source: STARBASE website)

The ERC presented Robotics Explora-

tions and Lego WeDo Robotics to the STARBASE Educators. Robotics Explorations contains materials that relates the use of robots by NASA to activities that students can do. Lego WeDo's allows students to work with simple machines, program models they design and create, measure time and distance, write and much more.



*Above: Painting with BristleBots
Far left: Remote controlling robots
Center: Hunting crater names on Mars*

The ERC Staff

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ERC Website: <http://erc.ivv.nasa.gov>

The NASA Independent Verification and Validation Program Educator Resource Center's goal is to serve teachers, informal educators, and pre-service teachers to enable them to reach their goals. Through a grant with Fairmont State University, the NASA IV&V Program ERC provides materials, equipment for loan, and professional development workshops for informal and formal educators both at the facility and around the state of West Virginia that reflect NASA's current research and technology.

Links to Student Competitions

First Lego League Robotics:

<http://www.firstlegoleague.org/>

Real World Design Challenge:

<http://www.realworlddesignchallenge.org/>

Team America Rocketry Challenge:

<http://rocketcontest.org/>

Green Aviation Contests:

<http://aero.larc.nasa.gov/competitions.htm>



Quote of the Month:

Before I came here I was confused about this subject. Having listened to your lecture I am still confused. But on a higher level.

Enrico Fermi

Where in WV is the ERC?

July Workshops in Red

July Equipment Loans in Blue

To schedule a workshop:

Contact the ERC by calling 304-367-8436 or emailing:

pamela.casto@ivv.nasa.gov

To schedule equipment for loan:

First check the equipment loan calendar on the ERC website to see if the equipment is available for the dates desired. Then email Amy Phillips who will schedule the dates.

amy.phillips@ivv.nasa.gov

Calling Amy F. Merrill at 304-367-8251 is also an option for scheduling.

